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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,373	02/25/2004	Terence Edwin Dodgson	678-1388	4425
66547 7590 12/11/2007 THE FARRELL LAW FIRM, P.C. 333 EARLE OVINGTON BOULEVARD SUITE 701 UNIONDALE, NY 11553			EXAMINER BROWN JR, NATHAN H	
			ART UNIT 2121	PAPER NUMBER
			MAIL DATE 12/11/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/787,373

Applicant(s)

DODGSON, TERENCE EDWIN

Examiner

Nathan H. Brown, Jr.

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE (3) MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Examiner's Detailed Office Action

1. This Office Action is responsive to the communication for application 10/787,373, filed October 25, 2007.
2. Claims 1-4 and 6-10 are pending. Claims 1, 3, and 4 are currently amended. Claim 5 is cancelled. Claims 2 and 6-10 were previously presented.
3. Examiner withdraws the previous final rejection.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-4 and 6-10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter: algorithm and signal.

Amended independent claim 1 recites a "method of training a neural network to perform decoding of a time-varying signal comprising a sequence of input symbols...wherein the input symbol is transmitted together with the plurality of output symbols to a communications network

decoder". Examiner considers the "method of training a neural network to perform decoding of a time-varying signal" to be an algorithm which performs no physical transformation and generates no specific and substantial result, as a "time-varying signal comprising a sequence of input symbols" is considered to be an abstraction of any physical process. Further, the transmitted input symbol and plurality of output symbols are considered to be a non-statutory signal. Therefore, claim 1 recites no more than the § 101 judicial exceptions of algorithm and signal and is non-statutory under 35 U.S.C. 101. Claim 2 provides further algorithmic limitation to claim 1 and therefore depends from claim 1 without fixing the deficiency of claim 1. Thus, claims 1 and 2 are considered to be non-statutory under 35 U.S.C. 101.

Amended independent claim 3 recites a "method of encoded communications in which input symbols are convolutionally encoded to provide, for each input symbol, a plurality of output symbols which depend on the input symbol, and the input symbol is transmitted together with the plurality of output symbols to a *communications network* for decoding". Claim 3 is considered non-statutory under 35 U.S.C. 101 for the same reason as claim 1. A method of convolutional encoding input symbols recites no more than an algorithm, operable for mathematical symbolic abstractions. Further, the transmitted input symbol and plurality of output symbols are considered to be a non-statutory signal. Therefore, claim 3 is considered to recite no more than the § 101 judicial exceptions of algorithm and signal and be non-statutory under 35 U.S.C. 101.

Amended independent claim 4 recites a “neural network for decoding encoded communications in which input symbols are convolutionally encoded to provide, for each input symbol, a plurality of output symbols...wherein at least one of the input symbols is transmitted to the communications network decoder”. Claim 4 recites no more than an mathematical model (i.e., neural network) of learning in which abstract input symbols are processed. Further, the final result of the processing, the transmitted input symbol and plurality of output symbols, is considered to be a non-statutory signal. Therefore, claim 4 is considered to be non-statutory under 35 U.S.C. 101. Claims 6-10 add hardware limitations to claim 4, but fail to cure the deficiencies of claim 4. Therefore claims 4 and 6-10 are considered non-statutory under 35 U.S.C. 101.

Response to Arguments

6. Applicant's arguments filed October 25, 2007 have been fully considered.

Rejection of Claims 1-3, 4 and 6-10 Under 35 U.S.C. §101

Applicant argues:

In rejecting Claims 1-3, 4 and 6-10 under 35 U.S.C. §101, the Examiner states, "Claim 1 entails no physical transformation and while the actual performance of decoding a time-varying signal comprising a sequence of input symbols may be concrete and useful, the tangible requirement does require that the claim recite more than a §101 judicial exception, and set forth a practical application of that §101 judicial exception to produce a real-world result." The Applicant respectfully disagrees and therefore, respectfully requests that the Examiner produce authority for this position because the claim does

recite a practical application producing real-world results, i.e. a time-varying signal decoder.

Examiner responds:

Applicant's argument is moot, based on new grounds of rejection.

Rejection of Claims 3, 6, and 7

Applicant argues:

Second, Claim 7 is rejected under 35 USC §102(b) while Claim 4, from which Claim 7 depends, is rejected under 35 USC §103(a). Since Claim 7 incorporates all of the limitations of Claim 4 and Claim 4 is rejected under § 103(a), Claim 7 cannot be properly rejected under § 102(b). This constitutes an improper rejection, and therefore a new non-Final rejection is respectfully requested. This is incompatible with a complete and clear rejection. See CFR 1.104 and MPEP §707.07(d).

Claim 6 is also improperly rejected based on the same theory invoked above. This is one more reason why a new Office Action is required.

Third, in rejecting Claim 3, the Examiner failed to consider the claim in its entirety. Better than half of the claim is left out; in this case, the Applicant cannot properly respond to the Action because the rejection of the claim does not afford the Applicant the opportunity to ascertain the veracity of the Examiner's interpretation of a specific element of the claim.

Examiner responds:

Applicant's arguments are persuasive. Examiner withdraws the previous final rejection and issues a new non-final rejection.

Rejection of Claim 1, 2, and 4 Under 35 U.S.C. §103(a)

Applicant argues:

The present invention discloses the network is thus trained to decode using the coder inputs, rather than the decoder outputs as in the prior art. (See, page 14, lines 4-5; input terminal of Comparison 300 in Fig 6). In contrast, Ejiri teaches data extracted from each block is used as input data of first multi-layered neural network 14 and data outputted from the intermediate layer of the first multi-layered neural network 14 is only transmitted to the second multi-layered neural network 17. However, the data from an intermediate layer is not compared with the input data of the first neural network 14, resulting in the first multi-layered neural network 14 not being trained.

The distinguishing features of the above configuration are recited in independent Claims 1, 3 and 4 respectively as "wherein the input symbol is transmitted together with the plurality of output symbols to a communications network decoder", "the input symbol is transmitted together with the plurality of output symbols to a communications network for decoding encoded communications" and "wherein at least one of the input symbols is transmitted to the communication network decoder together with the coded output symbols, and fed to its inputs together with the fed-back decoded symbols"

Examiner responds:

Examiner finds Applicant's argument persuasive and withdraws rejections of claims 1, 3, and 4 under 35 U.S.C. 103(a).


Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan H. Brown, Jr. whose telephone number is 571-272- 8632. The examiner can normally be reached on M-F 0830-1700. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent can be reached on 571-272-3080. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained

Application/Control Number:
10/787,373
Art Unit: 2121

Page 7

from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


David Vincent
Supervisory Patent Examiner
Tech Center 2100

Nathan H. Brown, Jr.
December 5, 2007